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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,897

01/25/2006

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112857507

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29175 7590 11/12/2008  
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EXAMINER

SUITTE, BRYANT P

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/12/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,897	<b>Applicant(s)</b> HIRAKIMOTO ET AL.	
	<b>Examiner</b> BRYANT SUITTE	<b>Art Unit</b> 1795	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 11 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 27-52 is/are pending in the application.
- 4a) Of the above claim(s) 39-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/25/06, 7/13/06</u>  | 6) <input type="checkbox"/> Other: _____                          |

**IONIC CONDUCTOR, METHOD OF MANUFACTURING THE SAME, AND  
ELECTROCHEMICAL DEVICE**

Examiner: Suitte

10/565,897

November 4, 2008

***Election/Restrictions***

1. Applicant's election without traverse of Group I claims 27-38 in the reply filed on July 11, 2008 is acknowledged. Claims 39-52 are withdrawn from consideration as being directed to a non-elected invention see 37 CFR 1.142 (b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 27-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Uetake (WO 02/058177), see correspond Uetake (US Patent 7,226,699) for translation.

Regarding claims 27, 28 and 29, Uetake discloses proton conductor (ionic conductor) comprising a proton dissociative group (ion-dissociative group) bonding to a fullerene group (derivative carbonaceous substance) and polyvinyl alcohol, polyvinylidene fluoride and polyfluoroethylene (polymer comprising a basic group). See column 4 lines 60-68, column 5 lines 1-25 and column 10 lines 35-40. The fullerene derivative and the polyvinyl alcohol are dissolved in an organic solvent and printed. The water is vaporized off to formulate a proton conductor film (ion conductor). See column 11 lines 47-60.

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Regarding claim 30, Uetake discloses a proton dissociative group (ion-dissociative group) is an acidic functional group. See column 5 lines 9-15.

Regarding claim 31, Uetake discloses the proton dissociative group introduced to the carbon atoms and polyvinyl alcohol in an amount not less than about 20%. See column 10 lines 25-35.

Regarding claim 32, Uetake discloses a proton conductor comprising a proton dissociative group  $-\text{SO}_3\text{H}$  (ion-dissociative group). See column 5 lines 9-14. It is well known in the art that hydrogen (H) is a cation producible group.

Regarding claim 33, Uetake discloses a proton conductor comprising a functional group  $-\text{OPO}(\text{OH})_2$ . It is well known in the art that hydrogen (H) is a cation producible group.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 34, 35, 36, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uetake (WO 02/058177) as applied to claims 27-33 above, and further in view of Ito et al. (US 5,571,660).

Regarding claims 34, 35, 36, 37 and 38, Uetake discloses polyvinyl alcohol, polyfluoroethylene and polyvinylidene fluorides as polymer material comprising a basic

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group. See column 9 lines 35-42 and column 10 lines 35-40. However, the polymers do not disclose a sulfur, oxygen or nitrogen atom.

Ito discloses binders or protective colloids polyvinyl alcohol, imidazole, pyrazole and pyrrolidone. See column 30 lines 23-41. Therefore, it would have been obvious to one having ordinary skill in the art that polyvinyl alcohol, pyrazole and imidazole (heterocyclic polymer), comprising nitrogen see structure below, pyrrolidone (heterocyclic polymer), comprising oxygen and nitrogen, are functional equivalent polymer structures.



imidazole

Furthermore, it would have been obvious to one having ordinary skill in the art to utilize imidazole (heterocyclic polymer) as a binder (polymer comprising a basic group) with the carbonaceous material to formulate the ion-conductor because Ito disclose by adding the polymeric material, imidazole, a polymeric material encapsulates the complexes and provides a reinforcement or protective coating. See column 30 lines 23-41.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYANT SUITTE whose telephone number is (571)270-3961. The examiner can normally be reached on Mon-Fri 10-6.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BS

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795